

CLAIMS**I claim:**

1. A method of reclaiming static IP addresses from a client machine connected to a network utilizing a dynamic host configuration protocol (DHCP) server,
5 comprising the steps of:

 sending a DHCP RECLAIM command to the client machine having the static IP address to be reclaimed; and

 setting a state of the static IP address to be reclaimed to FREE.
- 10 2. The method of claim 1, wherein the step of setting a state of the static IP address to be reclaimed to FREE is dependent on a step of receiving an acknowledgment of the DHCP RECLAIM command from the client machine.
- 15 3. The method of claim 2, wherein the step of receiving an acknowledgment comprises the step of receiving a positive acknowledgment (ACK) and the step of receiving a negative acknowledgment (NACK).
- 20 4. The method of claim 2, further comprising the step, performed before the step of setting a state of the static IP address to be reclaimed to FREE, of setting a state of the static IP address to be reclaimed to DEPRECATED.
5. The method of claim 4, further comprising the step of seeding an address resolution protocol (ARP) cache with a physical address of the client machine.

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receiving a DHCP DISCOVER request from the client machine having the static

5 IP address whose state is DEPRECATED;

setting the state to FREE; and

sending an IP address to the client machine.

receiving a DHCP RENEW request from the client machine having the static IP address whose state is DEPRECATED; and

sending a NACK to the client machine.

9. The method of claim 8, wherein the step of re-transmitting is performed for maximum a preset number of times.

10. The method of claim 4, further comprising the step of setting the state to FREE after a maximum lifetime of the DEPRECATED state.

11. A computer-readable media having stored thereon computer-executable instructions for performing the method of claim 1.

12. The computer-readable media of claim 11, having further computer-executable instructions for performing the method of claim 4.

13. A method of relinquishing a static IP address, comprising the steps of:
receiving a DHCP RECLAIM command; and
entering the DHCP initialization (INIT) state to obtain a new IP address.

14. The method of claim 13, further comprising the step of sending an acknowledgment (ACK) of the DHCP RECLAIM command.

15. The method of claim 14:
wherein the DHCP RECLAIM command relates to a particular IP address;
further comprising the step of determining if the particular IP address is valid; and
wherein the step of entering the DHCP INIT state is dependent on the IP address being valid; else
further comprising the step of sending a negative acknowledgment (NACK).

16. The method of claim 13, further comprising the steps of:
marking the IP address for removal;
sending an acknowledgment (ACK); and thereafter

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- determining whether a current IP address exists;
- determining whether the current IP address is marked for removal;
- entering a DHCP INIT state when there is no current IP address;

entering a DHCP INIT state when the current IP address is marked for removal;
and

entering a DHCP INIT_REBOOT state when the current IP address is not marked
for removal.

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22. The method of claim 21, wherein after performing the step of entering a
DHCP INIT_REBOOT state, further comprising the step of entering the DHCP INIT
state if a negative acknowledgment (NACK) is received in response to the step of
entering a DHCP INIT_REBOOT state.

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23. A computer-readable media having stored thereon computer-executable
instructions for performing the method of claim 21.

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24. The computer-readable media of claim 23, having further computer-
executable instructions for performing the method of claim 22.

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25. A method of assigning an IP address to a client machine from a dynamic
host configuration protocol (DHCP) server, comprising the steps of:
receiving a DHCP DISCOVER request from a client;
determining whether an IP address in a DEPRECATED state is currently assigned
to the client;
setting the state of the IP address to FREE if there is an IP address in a
DEPRECATED state assigned to the client; and

providing a new IP address to the client.

26. A computer-readable media having stored thereon computer-executable instructions for performing the method of claim 25.

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27. A method of assigning an IP address to a client machine from a dynamic host configuration protocol (DHCP) server, comprising the steps of:

receiving a DHCP RENEW request from a client;

determining whether an IP address in a DEPRECATED state is currently assigned

10 to the client;

setting the state of the IP address to FREE if there is an IP address in a

DEPRECATED state assigned to the client; and

sending a negative acknowledgment (NACK) to the client.

15 28. A computer-readable media having stored thereon computer-executable instructions for performing the method of claim 27.

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